# Collision Repair Technology

Program of Studies
2014-2015


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# Collision Repair Technology Courses

| Course Title | Post-Secondary Connection | Valid Course Code | Recommended Grade Level | | | | | | | Recommended Credit |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | 6 | 7 | 8 | 9 | 10 | 11 | 12 | |
| Intro To Collision Repair | CRT 100 | 470631 | | | | | X | X | X | .5 |
| Damage Analysis, Estimating And Customer Service | | 470628 | | | | | | X | X | .5 |
| Mech & Elec Components I | CRT 250-1 | 470642 | | | | | | X | X | .5 |
| Mech & Elec Components II | CRT 250-2 | 470653 | | | | | | X | X | .5 |
| Mech & Elec Components Lab I | CRT 251-1 | 470643 | | | | | | X | X | .5 |
| Mech & Elec Components Lab II | CRT 251-2 | 470654 | | | | | | X | X | .5 |
| Non-Structuraltural Damage Repair I | CRT 130-1 | 470633 | | | | | | X | X | .5 |
| Non-Structural Damage Repair II | CRT 130-2 | 470644 | | | | | | X | X | .5 |
| Non-Structural Damage Repair III | CRT 130-3 | 470649 | | | | | | X | X | .5 |
| Non-Structural Damage Repair Lab I | CRT 131-1 | 470636 | | | | | | X | X | .5 |
| Non-Structural Damage Repair Lab II | CRT 131-2 | 470648 | | | | | | X | X | .5 |
| Non-Structural Damage Repair Lab III | CRT 131-3 | 470650 | | | | | | X | X | .5 |
| Paint & Refinish I | CRT 150-1 | 470639 | | | | | | X | X | .5 |
| Paint & Refinish I Lab | CRT 151-1 | 470634 | | | | | | X | X | .5 |
| Paint & Refinish II | CRT 150-2 | 470640 | | | | | | X | X | .5 |
| Paint & Refinish II Lab | CRT 151-2 | 470638 | | | | | | X | X | .5 |
| Paint & Refinish III | CRT 150-3 | 470645 | | | | | | X | X | .5 |
| Paint & Refinish III Lab | CRT 151-3 | 470637 | | | | | | X | X | .5 |
| Paint & Refinish Special Problems | CRT 150-4 | 470647 | | | | | | X | X | .5 |
| Structural Analysis & Damage Rep I | CRT 230-1 | 470620 | | | | | | X | X | .5 |
| Structuraltural Analysis & Damage Rep Ii | CRT 230-2 | 470622 | | | | | | X | X | .5 |
| Structural Damage Repair I Lab | CRT 231-1 | 470621 | | | | | | X | X | .5 |

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|---|---|---|---|---|---|---|---|---|---|---|
| Structural Damage Repair II Lab | CRT 231-2 | 470623 | | | | | | X | X | .5 |
| Non-Structural Damage And Repair Special Problems | CRT 130-4 | 470651 | | | | | | X | X | .5 |
| Non-Structural Damage And Repair Special Problems Lab | CRT 131-4 | 470652 | | | | | | X | X | .5 |
| Co-Op I (Collision Repair) | CRT 199 | 470601 | | | | | | X | X | 1 |
| Co-Op II (Collision Repair) | CRT 299 | 470602 | | | | | | X | X | 1 |
| Co-Op III (Collision Repair) | CRT 297 | 470603 | | | | | | X | X | 1 |
| Industrial Safety | ISX 100 | 460301 | | | | | X | X | X | .5 |
| Personal Financial Mgmt | BAS 120 | 060170 | | | | X | X | X | X | .5 |
| Collision Repair Internship I | CRT 198 | 470604 | | | | | | X | X | 1 |
| Collision Repair Internship II | CRT 298 | 470605 | | | | | | X | X | 1 |
| Collision Repair Internship III | CRT 198/298 | 470606 | | | | | | X | X | 1 |
| Special Projects I (Collision Repair) | CRT 291 | 470677 | | | | | | X | X | .5 |
| Special Projects II (Collision Repair) | CRT 293 | 470678 | | | | | | X | X | 1 |
| Special Projects III (Collision Repair) | CRT 295 | 470679 | | | | | | X | X | 1 |
| Workplace Principles | WPP 200 | 060191 | | | | X | X | X | X | .5 |

# COLLISION REPAIR TECHNOLOGY EDUCATION

**Overview of Collision Repair Technology Education**

**Purpose:**
The vision of Kentucky Collision Repair Technology Education is to promote safety standards and performance standards, enhance leadership, provide relevant curriculum, and to be vital to the education of all students.
Collision Repair Technology Education will:

- Operate as the center for nationally recognized industry standard training.
- Provide a critical link in school to employment or postsecondary education.
- Develop stronger relationships with the community in terms of mutual advocacy, cooperative field experiences, employment placement, and support for relevant student organizations and competitions
- Represent an important component in the education of all students.
- Require and promote critical thinking and problem solving.
- Offer an up to date curriculum based on standards that adapts to changes in the industry.
- Integrate academic skills into the Collision Repair Technology Curriculum in order to insure that students develop written & verbal communications skills, computational skills, and scientific/math problem-solving skills.

**Career Pathways:**
*Auto Body Painter Helper
*Auto Body Helper – Structural Analysis and Damage Repair
*Auto Body Helper - Nonstructural
*Auto Body Helper - Mechanical and Electrical
*Painting and Refinishing/Non-Structural Repairer

**Standard Based Curriculum**
The curriculum is composed of industry standards based competencies/tasks. Therefore, the teaching/learning focus is on the final results rather than the process.

**Kentucky Occupational Skill Standards**
The Kentucky Occupational Skill Standards are the performance specifications that identify the knowledge, skills, and abilities an individual needs to succeed in the workplace. Identifying the necessary skills is critical to preparing students for entry into employment or post-secondary education. These standards described the necessary **occupational, academic,** and **employability** skills needed to enter the workforce or post-secondary education in specific career areas. There is an ongoing effort to continue to refine these standards by which exemplary Transportation Education Programs are evaluated and certified. This helps insure that curriculum meets industry specifications.

**Work Based Learning**
Cooperative experience, internships, shadowing and mentoring opportunities provide depth and breadth of learning in the instructional program and allow students to apply the concepts learned in the classroom. The Work Base Learning Guide is available on the KDE webpage: www.education.ky.gov.

**Student Organizations and Competitions**
Participation in Skills USA competitions provides a vehicle for students to employ higher order thinking skills, to interact with high-level industry people and to further enhance their leadership skill through their participation in regional, state and national competitive events and local activities.

# Collision Repair Pathways

| KDE/OCTE Career Pathways<br>Collision Repair Programs | | |
|---|---|---|
| **Career Pathway** | **Pathway Courses** | **Elective Courses** |
| Entry Level Collision Repair Painter<br><br>CIP Code: 47.0603.01<br><br><u>*Tests for Certification*</u><br>* ASE Student Certification-Painting and Refinishing<br>* KOSSA-Transportation Test | *Painting and Refinishing I and Lab I<br>*Painting and Refinishing II and Lab II<br>*Painting and Refinishing III and Lab III<br>*Damage Analysis, Estimating and Customer Service<br>*Painting and Refinishing Special Problems | *Intro to Collision Repair<br>(.5 credit class that can substitute for Painting and Refinishing Special Problems) |
| Entry Level Structural Analysis and Damage Repair Technician<br><br>CIP Code: 47.0603.02<br><br><u>*Tests for Certification*</u><br>* ASE Student Certification-Structural Analysis and Damage Repair<br>*Non-Structural Analysis and Damage Repair<br>* KOSSA-Transportation Test | *Non-Structural Analysis and Damage Repair III and Lab III<br>*Structural Analysis and Damage Repair I and Lab I<br>*Structural Analysis and Damage Repair II and Lab II<br>*Damage Analysis, Estimating and Customer Service<br>*Collision Repair Special Projects I<br><br>*NOTE: Non-Structural Analysis and Damage Repair and Lab I and II must be completed before the student can begin the Structural Analysis and Damage Repair Pathway.* | *Intro to Collision Repair<br>(.5 credit class that can substitute for Collision Repair Special Projects I) |
| Entry Level Nonstructural Damage and Repair Technician<br><br>CIP Code: 47.0603.03<br><br><u>*Tests for Certification*</u><br>* ASE Student Certification-Non-Structural Analysis and Damage Repair<br>* KOSSA-Transportation Test | *Non-Structural Analysis and Damage Repair I and Lab I<br>*Non-Structural Analysis and Damage Repair II and Lab II<br>*Non-Structural Analysis and Damage Repair III and Lab III<br>*Damage Analysis, Estimating and Customer Service<br>*Non-Structural Analysis and Damage Repair Special Problems | *Intro to Collision Repair<br>(.5 credit class that can substitute for Non-Structural Analysis and Damage Repair Special Problems.) |

| | | |
|---|---|---|
| Entry Level Mechanical and Electrical Repair Technician<br><br>CIP Code: 47.0603.04<br><br><u>*Tests for Certification*</u><br>* ASE Student Certification-Mechanical and Electrical Components<br>* KOSSA-Transportation Test | *Intro to Collision Repair<br>*Damage Analysis, Estimating and Customer Service<br>*Mechanical and Electrical Components I and Lab I<br>*Mechanical and Electrical Components II and Lab II<br>*Collision Repair Special Projects II | |
| Painting and Refinishing/Non-Structural Repairer<br><br>CIP Code: 47.0603.05<br><br><u>*Tests for Certification*</u><br>* ASE Student Certification-Non-Structural Analysis and Damage Repair<br>* ASE Student Certification-Painting and Refinishing<br>* KOSSA-Transportation Test | *Painting and Refinishing I and Lab I<br>*Painting and Refinishing II and Lab II<br>*Painting and Refinishing III and Lab III<br>*Damage Analysis, Estimating and Customer Service<br>*Painting and Refinishing Special Problems<br><br>*NOTE: Non-Structural Analysis and Damage Repair and Lab I, II, and III must be completed before the student can begin the Painting and Refinishing/Non-Structural Repairer Pathway* | *Intro to Collision Repair<br>(.5 credit class that can substitute for Painting and Refinishing Special Problems) |

# KENTUCKY CAREER PATHWAY/PROGRAM OF STUDY TEMPLATE

**COLLEGE/UNIVERSITY:**
**HIGH SCHOOL (S):**
**CLUSTER:** Transportation
**PATHWAY:** Painting and Refinishing/Non-Structural Repairer
**PROGRAM:** Collision Repair Technology

| | GRADE | ENGLISH | MATH | SCIENCE | SOCIAL STUDIES | REQUIRED COURSES RECOMMENDED ELECTIVE COURSES OTHER ELECTIVE COURSES CAREER AND TECHNICAL EDUCATION COURSES | | | | CREDENTIAL CERTIFICATE DIPLOMA DEGREE | SAMPLE OCCUPATIONS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SECONDARY | 9 | English I | Business Math | Health / PE | Economics | | | Computer Applications | | | |
| | 10 | English II | Algebra I | Earth Science | U.S, History | (CRT 100) Intro to Auto Body | (CRT 130-1, 131-1) Non-Strutural Damage I and Lab | (CRT 130-2, 131-2) Non Strut Damage II and Lab | | | |
| | 11 | English III | Geometry | Physical Science | Foreign Language I | (CRT 130-3, 131-3) Non-Structural Damage III and Lab | (CRT 150-1 151-1) Paint and Refinish I and Lab | (CRT 150-2 151-2) Paint and Refinishing II and Lab | | ASE Student Certification Auto Body Non-Structural Helper O*Net 49-3021.00-01 | |
| | 12 | English IV | Algebra II | Intro to Physics | Foreign Language II | (CRT 150-3 151-3) Paint and Refinishing III and Lab | CRT 150-4 Paint and Refinishing Special Projects | CRT 101 Damage Analysis, Estimating and Customer Service | | ASE Student Certification Auto Body Painter Helper O*NET Code: 49-3021.00-04 | Entry Level Technician |
| Take Compass/ACT Test | | | | | | | | | | | |
| POSTSECONDARY | Year 13 | Writing I | Math | Science | Computer Applications | (CRT 230-231) Strutural Damage I | (CRT 230-231) Structural Damage II | | | | |
| | Year 14 | Oral Communications | Elective | Humanities | Social Interaction | (CRT 250-251) Mech & Elect I | (CRT 250-251) Mech & Elec Lab II | | | Associate in Applied Science Collision Repair Tech | Auto Body Technician |
| | Year 15 | Begin work experience - Study for, take, and pass ASE exams | | | | | | | | | |
| | Year 16 | Two years of verifiable work experience - Take, and pass ASE exams, Receive Certification | | | | | | | | | Auto Body Technician, Estimator, Shop Foreman, Service Manager, Shop Owner |


League for Innovation in the Community College — CCTI College and Career Transitions Initiative
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**Required Courses**
**Recommended Elective Courses**
**Other Elective Courses**
**Career and Technical Education Courses**
**Credit-Based Transition Programs (e.g. Dual/Concurrent Enrollment, Articulated Courses, 2+2+2)**
**(◆=High School to Comm. College) (● =Com. College to 4-Yr Institution) (■ = Opportunity to test out)**
**Mandatory Assessments, Advising, and Additional Preparation**

Sample Career Pathway/Collision Repair

# COLLISION REPAIR TECHNOLOGY COURSES/TASKS

**Introduction to Collision Repair**
**Valid Course Code**
**470631**

## Course Description

This course introduces the student to safety, sanding, grinding, pulling, roughing and filling; the use of tools and equipment; and preparing and priming automotive panels through lectures and demonstrations

## Content/Process

Student Will:

1. Review damage report and analyze damage to determine appropriate methods for overall repair; develop repair plan.
2. Inspect, remove, store, and replace exterior trim and moldings.
3. Protect panels, glass, interior parts, and other vehicles adjacent to the repair area.
4. Soap and water wash entire vehicle for inspection.
5. Remove the paint from the damaged area of a body panel.
6. Locate and repair surface irregularities on a damaged body panel.
7. Heat shrink stretched panel areas to proper contour.
8. Mix and apply body filler.
9. Rough sand cured body filler to contour; finish sand.
10. Mix primer, primer-surfacer, or primer-sealer
11. Apply primer onto surface of prepared area.
12. Dry or wet sand areas to which primer surfacer has been applied.
13. Clean area to be refinished using a final cleaning solution.

## Connections:

*Common Core State Standards
*KOSSA
*Common Core Technical Standards
*New Generation Science Standards
*Post-Secondary: KCTCS CRT 100
CTSO's – Skills USA

**Non-Structural Damage Repair I, II, III**
**Valid Course Codes**
**Class A: 470633, Lab A: 70636**
**Class B: 470644, Lab B: 470648**
**Class C: 470649 Lab C: 70650**

## Course Description

This course gives instruction and provides practical experience in replacing and aligning bolts on automotive parts such as doors, hoods, and fenders; as well as instruction on the repair and replacement of non-structural weld-on automotive panels by aligning, welding, cutting, and drilling through demonstrations and lectures. It will be taught by demonstration and hands-on practice. The skills required are most effectively taught and practiced on live work. Due to the unpredictable nature of live work, some tasks may carry over to other courses. For every task in Non-Structural Analysis and Damage Repair (Body Components), the following safety requirement must be strictly enforced: comply with personal and environmental safety practices associated with clothing and the use of gloves, respiratory protection, eye protection, hearing protection, hand tools, power equipment, proper ventilation, and the handling, storage, and disposal of chemicals/materials in accordance with local, state, and federal safety and environmental regulations. Identify vehicle manufacturer's SRS types, locations and recommended procedures before inspecting or replacing components.

## Content/Process

Students Will:

1. Review damage report and analyze damage to determine appropriate methods for overall repair; develop and document a repair plan.
2. Inspect, remove, label, store, and reinstall exterior trim and moldings.
3. Inspect, remove, label, store, and reinstall interior trim and components.
4. Inspect, remove, label, store, and reinstall body panels and components that may interfere with or be damaged during repair.
5. Inspect, remove, label, store, and reinstall vehicle mechanical and electrical components that may interfere with or be damaged during repair.
6. Protect panels, glass, interior parts, and other vehicles adjacent to the repair area.
7. Soap and water wash entire vehicle and complete pre-repair inspection checklist.
8. Prepare damaged area using water-based and solvent-based cleaners.
9. Remove corrosion protection, undercoatings, sealers, and other protective coatings as necessary to perform repairs.
10. Inspect, remove, and reinstall repairable plastics and other components for off-vehicle repair.
11. Determine the extent of direct and indirect/hidden damage and direction of impact; develop and document a repair plan.
12. Inspect, remove and replace bolted, bonded, and welded steel panel or panel assemblies.

13. Determine the extent of damage to aluminum body panels; repair or replace.
14. Inspect, remove, replace, and align hood, hood hinges, and hood latch.
15. Inspect, remove, replace, and align deck lid, lid hinges, and lid latch.
16. Inspect, remove, replace, and align doors, latches, hinges, and related hardware.
17. Inspect, remove, replace and align tailgates, hatches, liftgates and sliding doors.
18. Inspect, remove, replace, and align bumper bars, covers, reinforcement, guards, isolators, and mounting hardware.
19. Inspect, remove, replace and align fenders, and related panels.
20. Straighten contours of damaged panels to a suitable condition for body filling or metal finishing using power tools, hand tools, and weld-on pulling attachments.
21. Weld damaged or torn steel body panels; repair broken welds.
22. Restore corrosion protection.
23. Replace door skins.
24. Restore sound deadeners and foam materials.
25. Perform panel bonding and weld bonding.
26. Diagnose and repair water leaks, dust leaks, and wind noise.
27. Identify one-time use fasteners.
28. Remove paint from the damaged area of a body panel.
29. Locate and repair surface irregularities on a damaged body panel.
30. Demonstrate hammer and dolly techniques.
31. Heat shrink stretched panel areas to proper contour.
32. Cold shrink stretched panel areas to proper contour.
33. Prepare and apply body filler.
34. Identify different types of body fillers.
35. Rough sand body filler to contour; finish sand.
36. Determine the proper metal finishing techniques for aluminum.
37. Determine proper application of body filler to aluminum.
38. Inspect, adjust, repair or replace window regulators, run channels, glass, power mechanisms, and related controls.
39. Inspect, adjust, repair, remove, reinstall or replace weather-stripping.
40. Inspect, repair or replace, and adjust removable power operated roof panel and hinges, latches, guides, handles, retainer, and controls of sunroofs.
41. Inspect, remove, reinstall, and align convertible top and related mechanisms.

42. Initialize electrical components as needed.

43. Identify weldable and non-weldable substrates used in vehicle construction.

44. Weld and cut high-strength steel and other steels.

45. Weld and cut aluminum.

46. Determine the correct GMAW (MIG) welder type, electrode/wire type, diameter, and gas to be used in a specific welding situation.

47. Set up and adjust the GMAW (MIG) welder to "tune" for proper electrode stickout, voltage, polarity, flow rate, and wire-feed speed required for the substrate being welded.

48. Store, handle, and install high-pressure gas cylinders.

49. Determine work clamp (ground) location and attach.

50. Use the proper angle of the gun to the joint and direction of gun travel for the type of weld being made in the flat, horizontal, vertical, and overhead positions.

51. Protect adjacent panels, glass, vehicle interior, etc. from welding and cutting operations.

52. Protect computers and other electronic control modules during welding procedures.

53. Clean and prepare the metal to be welded, assure good metal fit-up, apply weld-through primer if necessary, clamp or tack as required.

54. Determine the joint type (butt weld with backing, lap, etc.) for weld being made.

55. Determine the type of weld (continuous, stitch weld, plug, etc.) for each specific welding operation.

56. Perform the following welds: continuous, plug, butt weld with and without backing, fillet, etc.

57. Perform visual and destructive tests on each weld type.

58. Identify the causes of various welding defects; make necessary adjustments.

59. Identify cause of contact tip burn-back and failure of wire to feed; make necessary adjustments.

60. Identify cutting process for different substrates and locations; perform cutting operation.

61. Identify different methods of attaching non-structural components (squeeze type resistant spot welds (STRSW), riveting, non-structural adhesive, silicon bronze, etc.)

62. Identify the types of plastics; determine repairability.

63. Clean and prepare the surface of plastic parts; identify the types of plastic repair procedures.

64. Repair rigid, semi-rigid, or flexible plastic panels.

65. Remove or repair damaged areas from rigid exterior composite panels.

66. Replace bonded rigid exterior composite body panels; straighten or align panel supports.

**Connections:**

*Common Core State Standards
*KOSSA
*Common Core Technical Standards
*New Generation Science Standards
*Post-Secondary: KCTCS CRT 130-131
CTSO's – Skills USA

**Painting and Refinishing I, II, III**
**Valid Course Codes**
**Class A: 470639 Lab A: 470634**
**Class B: 470640 Lab B: 470638**
**Class C: 470645 Lab C: 470637**

## Course Description

This course provides instruction in the use of lacquer, acrylic enamel and base coat/clear coat refinishing products, masking procedures, preparations and paint problems. It will be taught by demonstration and lecture. The skills required are most effectively taught and practiced on live work. Due to the unpredictable nature of live work, some tasks may carry over to other courses. For every task in Painting and Refinishing, the following safety requirement must be strictly enforced: comply with personal and environmental safety practices associated with clothing and the use of gloves, respiratory protection, eye protection, hand tools, power equipment, proper ventilation, and the handling, storage, and disposal of chemicals/materials in accordance with local, state, and federal safety and environmental regulations.

## Content/Process

Students Will:

1. Identify and take necessary precautions with hazardous operations and materials according to federal, state, and local regulations.
2. Identify safety and personal health hazards according to OSHA guidelines and the "Right to Know Law".
3. Inspect spray environment and equipment to ensure compliance with federal, state and local regulations, and for safety and cleanliness hazards.
4. Select and use a NIOSH approved air purifying respirator. Inspect condition and ensure fit and operation. Perform proper maintenance in accordance with OSHA Regulation 1910.134 and applicable state and local regulation.
5. Select and use a NIOSH approved supplied air (Fresh Air Make-up) respirator system. Perform proper maintenance in accordance with OSHA Regulation 1910.134 and applicable state and local regulation.
6. Select and use the proper personal safety equipment for surface preparation, spray gun and related equipment operation, paint mixing, matching and application, paint defects, and detailing (gloves, suits, hoods, eye and ear protection, etc.).
7. Inspect, remove, store, and replace exterior trim and components necessary for proper surface preparation.
8. Soap and water wash entire vehicle; use appropriate cleaner to remove contaminants.
9. Inspect and identify substrate, type of finish, surface condition, and film thickness; develop and document a plan for refinishing using a total product system.
10. Strip paint to bare substrate (paint removal).
11. Dry or wet sand areas to be refinished.
12. Featheredge damaged areas to be refinished.

13. Apply suitable metal treatment or primer in accordance with total product systems.
14. Mask and protect other areas that will not be refinished.
15. Mix primer, primer-surfacer or primer-sealer.
16. Identify a complimentary color or shade of undercoat to improve coverage.
17. Apply primer onto surface of repaired area.
18. Apply two-component finishing filler to minor surface imperfections.
19. Block sand area to which primer-surfacer has been applied.
20. Dry sand area to which finishing filler has been applied.
21. Remove dust from area to be refinished, including cracks or moldings of adjacent areas.
22. Clean area to be refinished using a final cleaning solution.
23. Remove, with a tack rag, any dust or lint particles from the area to be refinished.
24. Apply suitable sealer to the area being refinished
25. Scuff sand to remove nibs or imperfections from a sealer.
26. Apply stone chip resistant coating.
27. Restore caulking and seam sealers to repaired areas.
28. Prepare adjacent panels for blending.
29. Identify the types of rigid, semi-rigid or flexible plastic parts to be refinished; determine the materials, preparation, and refinishing procedures.
30. Identify metal parts to be refinished; determine the materials, preparation, and refinishing procedures.
31. Inspect, clean, and determine condition of spray guns and related equipment (air hoses, regulators, air lines, air source, and spray environment).
32. Select spray gun setup (fluid needle, nozzle, and cap) for product being applied.
33. Test and adjust spray gun using fluid, air and pattern control valves
34. Demonstrate an understanding of the operation of pressure spray equipment.
35. Identify color code by manufacturer's vehicle information label.
36. Shake, stir, reduce, catalyze/activate, and strain refinish materials.
37. Apply finish using appropriate spray techniques (gun arc, gun angle, gun distance, gun speed, and spray pattern overlap) for the finish being applied.
38. Apply selected product on test and let-down panel; check for color match.
39. Apply single stage topcoat.
40. Apply basecoat/clearcoat for panel blending or panel refinishing.

41. Apply basecoat/clearcoat for overall refinishing.
42. Remove nibs or imperfections from basecoat.
43. Refinish rigid or semi-rigid plastic parts.
44. Refinish flexible plastic parts.
45. Apply multi-stage coats for panel blending or overall refinishing.
46. Identify and mix paint using a formula.
47. Identify poor hiding colors; determine necessary action.
48. Tint color using formula to achieve a blendable match.
49. Identify alternative color formula to achieve a blendable match.
50. Identify the materials equipment and preparation differences between solvent and waterborne technologies.
51. Identify blistering (raising of the paint surface, air entrapment); determine the cause(s) and correct the condition.
52. Identify a dry spray appearance in the paint surface; determine the cause(s) and correct the condition.
53. Identify the presence of fish-eyes (crater-like openings) in the finish; determine the cause(s) and correct the condition.
54. Identify lifting; determine the cause(s) and correct the condition.
55. Identify clouding (mottling and streaking in metallic finishes); determine the cause(s) and correct the condition.
56. Identify orange peel; determine the cause(s) and correct the condition.
57. Identify overspray; determine the cause(s) and correct the condition.
58. Identify solvent popping in freshly painted surface; determine the cause(s) and correct the condition.
59. Identify sags and runs in paint surface; determine the cause(s) and correct the condition.
60. Identify sanding marks or sandscratch swelling; determine the cause(s) and correct the condition.
61. Identify contour mapping/edge mapping while finish is drying; determine the cause(s) and correct the condition.
62. Identify color difference (off-shade); determine the cause(s) and correct the condition.
63. Identify tape tracking; determine the cause(s) and correct the condition.
64. Identify low gloss condition; determine the cause(s) and correct the condition.
65. Identify poor adhesion; determine the cause(s) and correct the condition.

66. Identify paint cracking (shrinking, splitting, crowsfeet or line-checking, micro-checking, etc.); determine the cause(s) and correct the condition.

67. Identify corrosion; determine the cause(s) and correct the condition.

68. Identify dirt or dust in the paint surface; determine the cause(s) and correct the condition.

69. Identify water spotting; determine the cause(s) and correct the condition.

70. Identify finish damage caused by bird droppings, tree sap, and other natural causes; correct the condition.

71. Identify finish damage caused by airborne contaminants (acids, soot, rail dust, and other industrial-related causes); correct the condition.

72. Identify die-back conditions (dulling of the paint film showing haziness); determine the cause(s) and correct the condition.

73. Identify chalking (oxidation); determine the cause(s) and correct the condition.

74. Identify bleed-through (staining); determine the cause(s) and correct the condition.

75. Identify pin-holing; determine the cause(s) and correct the condition.

76. Identify buffing-related imperfections (swirl marks, wheel burns); correct the condition.

77. Identify pigment flotation (color change through film build); determine the cause(s) and correct the condition.

78. Apply decals, transfers, tapes, woodgrains, pinstripes (painted and taped), etc.

79. Buff and polish finish to remove defects as required.

80. Clean interior, exterior, and glass.

81. Clean body openings (door jambs and edges, etc.).

82. Remove overspray.

83. Perform vehicle clean-up; complete quality control using a checklist.

**Connections:**

*Common Core State Standards
*KOSSA
*Common Core Technical Standards
*New Generation Science Standards
*Post-Secondary: KCTCS CRT 150-151
CTSO's – Skills USA

**Structural Analysis and Damage Repair I, II**
**Valid Course Codes**
**Class A: 470620 Lab A: 470621**
**Class B: 470622 Lab B: 470623**

## Course Description

This course presents instruction on the analysis, repair and replacement of structural panels on unibody automobiles and body and frame alignment on unibody and frame cars. It will be taught by demonstration and lecture. The skills required are most effectively taught and practiced on live work. Due to the unpredictable nature of live work, some tasks may carry over to other courses. For every task in Structural Analysis and Damage Repair, the following safety requirement must be strictly enforced: comply with personal and environmental safety practices associated with clothing and the use of gloves, respiratory protection, eye protection, hand tools, power equipment, proper ventilation, and the handling, storage, and disposal of chemicals/materials in accordance with local, state, and federal safety and environmental regulations. Identify vehicle manufacturer's SRS types, locations and recommended procedures before inspecting or replacing components.

## Content/Process

Students Will:

1. Measure and diagnose structural damage using a tram gauge.
2. Attach vehicle to anchoring devices.
3. Analyze, straighten and align mash (collapse) damage.
4. Analyze, straighten and align sag damage.
5. Analyze, straighten and align sidesway damage.
6. Analyze, straighten and align twist damage.
7. Analyze, straighten and align diamond frame damage.
8. Remove and replace damaged structural components.
9. Restore corrosion protection to repaired or replaced frame areas.
10. Analyze and identify misaligned or damaged steering, suspension, and powertrain components that can cause vibration, steering, and wheel alignment problems.
11. Align or replace misaligned or damaged steering, suspension, and powertrain components that can cause vibration, steering, and wheel alignment problems.
12. Identify or repair heat limitations and monitoring procedures for structural components.
13. Demonstrate an understanding of structural foam applications.
14. Measure and diagnose structural damage using a three-dimensional measuring system (mechanical, electronic, laser etc.)
15. Measure and diagnose structural damage to vehicles using a dedicated (fixture) measuring system.

16. Determine the extent of the direct and indirect damage and the direction of impact; document the methods and sequence of repair.
17. Analyze and identify crush/collapse zones.
18. Restore mounting and anchoring locations.
19. Analyze and identify misaligned or damaged steering, suspension, and powertrain components that can cause vibration, steering, and chassis alignment problems.
20. Realign or replace misaligned or damaged steering, suspension, and powertrain components that can cause vibration, steering and chassis alignment problems.
21. Measure and diagnose unibody damage using tram gauge.
22. Determine and inspect the locations of all suspension, steering, and powertrain component attaching points on the vehicle.
23. Measure and diagnose unibody vehicles using a dedicated (fixture) measuring system.
24. Diagnose and measure unibody vehicles using a three-dimensional measuring system (mechanical, electronic, and laser, etc.).
25. Determine the extent of the direct and indirect damage and the direction of impact; plan and document the methods and sequence of repair.
26. Attach anchoring devices to vehicle; remove or reposition components as necessary.
27. Straighten and align cowl assembly.
28. Straighten and align roof rails/headers and roof panels.
29. Straighten and align hinge and lock pillars.
30. Straighten and align vehicle openings, floor pans, and rocker panels.
31. Straighten and align quarter panels, wheelhouse assemblies, and rear body sections (including rails and suspension/powertrain mounting points).
32. Straighten and align front-end sections (aprons, strut towers, upper and lower rails, steering, and suspension/power train mounting points, etc.).
33. Identify substrate and repair or replacement recommendations.
34. Identify proper cold stress relief methods.
35. Repair damage using power tools and hand tools to restore proper contours and dimensions.
36. Remove and replace damaged sections of steel body structures.
37. Determine the extent of damage to aluminum structural components; repair, weld, or replace.
38. Analyze and identify crush/collapse zones.
39. Restore mounting and anchoring locations.

40. Remove and reinstall or replace fixed glass (heated and non-heated) using recommended materials and techniques.

41. Remove and reinstall or replace modular glass using recommended materials.

42. Check for water leaks, dust leaks, and wind noise.

43. Identify weldable and non-weldable substrates used in vehicle construction.

44. Weld and cut high-strength steel and other steels.

45. Weld and cut aluminum.

46. Determine the correct GMAW (MIG) welder type, electrode/wire type, diameter, and gas to be used in a specific welding situation.

47. Set up and adjust the GMAW (MIG) welder to "tune" for proper electrode stickout, voltage, polarity, flow rate, and wire-feed speed required for the substrate being welded.

48. Store, handle, and install high-pressure gas cylinders.

49. Determine work clamp (ground) location and attach.

50. Use the proper angle of the gun to the joint and direction of gun travel for the type of weld being made in the flat, horizontal, vertical, and overhead positions

51. Protect adjacent panels, glass, vehicle interior, etc. from welding and cutting operations.

52. Protect computers and other electronic control modules during welding procedures.

53. Clean and prepare the metal to be welded, assure good metal fit-up, apply weld-through primer if necessary, clamp or tack as required.

54. Determine the joint type (butt weld with backing, lap, etc.) for weld being made.

55. Determine the type of weld (continuous, stitch weld, plug, etc.) for each specific welding operation.

56. Perform the following welds: continuous, plug, butt weld with and without backing, and fillet etc.

57. Perform visual and destructive tests on each weld type.

58. Identify the causes of various welding defects; make necessary adjustments.

59. Identify cause of contact tip burn-back and failure of wire to feed; make necessary adjustments.

60. Identify cutting process for different substrates and locations; perform cutting operation.

61. Identify different methods of attaching structural components (squeeze type resistance spot welding (STRSW), riveting, structural adhesive, silicon bronze, etc.)

**Connections:**

*Common Core State Standards
*KOSSA
*Common Core Technical Standards
*New Generation Science Standards
*Post-Secondary: KCTCS CRT 230-231
CTSO's – Skills USA

**Mechanical and Electrical Components I, II**
**Valid Course Codes**
**Class A: 470642 Lab A: 470643**
**Class B: 470653 Lab B: 470654**

## Course Description

This course provides instruction in the diagnosis, repair and/or replacement of suspension, steering, electrical, brake, drive train, fuel, exhaust, and restraint systems. It will be taught by demonstration and lecture. The theories and concepts of heating and air conditioning systems will also be discussed and demonstrated. This course provides practical experience in the inspection and repair or replacement of suspension and steering systems. It will be taught by demonstration and hands-on experience. The skills required are most effectively taught and practiced on live work. Due to the unpredictable nature of live work, some tasks may carry over to other courses. Prerequisites: Consent of Instructor

## Content/Process

Student Will:

1. Perform visual inspection and measuring checks to identify steering and suspension collision damage.
2. Identify one–time use fasteners.
3. Clean, inspect, and prepare reusable fasteners.
4. Remove, replace, inspect or adjust power steering pump, pulleys, belts, hoses, fittings and pump mounts.
5. Remove and replace power steering gear (non-rack and pinion type).
6. Inspect, remove, and replace power rack and pinion steering gear and related components.
7. Inspect and replace parallelogram steering linkage components.
8. Inspect, remove and replace upper and lower control arms and related components.
9. Inspect, remove and replace steering knuckle/spindle/hub assemblies (including bearings, races, seals, etc.).
10. Inspect, remove and replace front suspension system coil springs and spring insulators (silencers).
11. Inspect, remove, replace, and adjust suspension system torsion bars, and inspect mounts.
12. Inspect, remove and replace stabilizer bar bushings, brackets, and links.
13. Inspect, remove and replace MacPherson strut cartridge or assembly, upper bearing, and mount.
14. Inspect, remove, and replace rear suspension system transverse links, control arms, stabilizer bars, bushings, and mounts.
15. Inspect, remove, and replace suspension system leaf spring(s) and related components.

16. Inspect axle assembly for damage and misalignment.
17. Inspect, remove and replace shock absorbers.
18. Diagnose, inspect, adjust, repair or replace active suspension systems and associated lines and fittings.
19. Measure vehicle ride height and wheel base; determine needed repairs.
20. Inspect, remove, replace, and align front and rear frame (cradles/sub).
21. Diagnose and inspect steering wheel, steering column, and components.
22. Verify proper operation of steering system.
23. Diagnose front and rear suspension system noises and body sway problems; determine needed repairs.
24. Diagnose vehicle wandering, pulling, hard steering, bump steer, memory steering, torque steering, and steering return problems; determine needed repairs.
25. Demonstrate an understanding of suspension and steering alignments (caster, camber, toe, SAI etc.)
26. Diagnose tire wear patterns; determine needed repairs.
27. Inspect tires; identify direction of rotation and location; check tire size, tire pressure monitoring system (TPM) and adjust air pressure.
28. Diagnose wheel/tire vibration, shimmy, tire pull (lead), wheel hop problems; determine needed repairs.
29. Measure wheel, tire, axle, and hub runout; determine needed repairs.
30. Reinstall wheels and torque lug nuts.
31. Check for available voltage, voltage drop and current in electrical wiring circuits and components with a DMM (digital multimeter).
32. Repair electrical circuits, wiring, and connectors.
33. Inspect, test, and replace fusible links, circuit breakers, and fuses.
34. Perform battery state-of-charge test and slow/fast battery charge.
35. Inspect, clean, repair or replace battery, battery cables, connectors and clamps.
36. Dispose of batteries and battery acid according to local, state, and federal requirements.
37. Identify programmable electrical/electronic components and check for malfunction indicator lamp (MIL); record data for reprogramming before disconnecting battery.
38. Inspect alignment, adjust, remove and replace alternator (generator), drive belts, pulleys, and fans.
39. Check operation and aim headlamp assemblies and fog/driving lamps; determine needed repairs.

40. Inspect, test, and repair or replace switches, relays, bulbs, sockets, connectors, and wires of interior and exterior light circuits.

41. Remove and replace horn(s); check operation.

42. Check operation of wiper/washer systems; determine needed repairs.

43. Check operation of power side and tailgate window; determine needed repairs.

44. Inspect, remove and replace power seat, motors, linkages, cables, etc.

45. Inspect, remove and replace components of electric door and hatch/trunk lock.

46. Inspect, remove and replace components of keyless lock/unlock devices and alarm systems.

47. Inspect, remove and replace components of electrical sunroof and convertible/retractable hard top.

48. Check operation of electrically heated mirrors, windshields, back lights, panels, etc.; determine needed repairs.

49. Demonstrate the proper self-grounding procedures for handling electronic components.

50. Check for module communication errors using a scan tool.

51. Use wiring diagrams and diagnostic flow charts during diagnosis of electrical circuit problems.

52. Demonstrate safe disarming techniques of high voltage systems on hybrid vehicles.

53. Identify potential safety and environmental concerns associated with hybrid vehicle systems.

54. Inspect brake lines, hoses, and fittings for leaks, dents, kinks, rust, cracks or wear; tighten fittings and supports; replace brake lines (double flare and ISO types), hoses, fittings, seals, and supports

55. Identify, handle, store, and install appropriate brake fluids; dispose of in accordance with federal, state, and local regulations.

56. Bleed (manual, pressure, vacuum or surge) hydraulic brake system.

57. Pressure test brake hydraulic system; determine needed repair

58. Adjust brake shoes; remove and reinstall brake drums or drum/hub assemblies and wheel bearings.

59. Remove, clean and inspect caliper and rotor assembly and mountings for wear and damage; reinstall.

60. Check parking brake system operation.

61. Identify the proper procedures for handling brake dust.

62. Check for bent or damaged brake system components.

63. Demonstrate an understanding of various types of advanced braking systems (ABS, hydraulic, electronic, traction and stability control).

64. Identify and comply with environmental concerns relating to refrigerants and coolants.

65. Maintain and verify correct operation of certified refrigerant recovery and recharging equipment.

66. Locate and identify A/C system service ports.

67. Identify, recover, label and store refrigerant from A/C system.

68. Recycle refrigerant in accordance with EPA regulations.

69. Evacuate and recharge A/C system; check for leaks.

70. Identify oil type and maintain correct amount in A/C system.

71. Inspect, adjust, and replace A/C compressor drive belts; check pulley alignment.

72. Remove and replace A/C compressor; inspect, repair or replace A/C compressor mount.

73. Inspect, repair or replace A/C system mufflers, hoses, lines, fittings, orifice tube, expansion valve, and seals.

74. Inspect, test, and replace A/C system condenser and mounts.

75. Inspect and replace receiver/drier or accumulator/drier.

76. Inspect and repair A/C component wiring.

77. Demonstrate an understanding of safe handling procedures associated with high voltage A/C compressors and wiring.

78. Check engine cooling and heater system hoses and belts; determine needed repairs.

79. Inspect, test, remove, and replace radiator, pressure cap, coolant recovery system, and water pump.

80. Recover, refill, and bleed system with proper coolant and check level of protection; leak test system and dispose of materials in accordance with EPA specifications.

81. Remove, inspect and replace fan (both electrical and mechanical), fan sensors, fan pulley, fan clutch, and fan shroud; check operation.

82. Inspect, remove, and replace auxiliary oil/fluid coolers; check oil levels.

83. Demonstrate an understanding of hybrid cooling systems.

84. Remove, replace, and adjust shift or clutch linkage as required.

85. Remove, replace, and adjust cables or linkages for throttle valve (TV), kickdown, and accelerator pedal.

86. Remove and replace electronic sensors, wires, and connectors.

87. Remove and replace powertrain assembly; inspect, replace, and align powertrain mounts

88. Remove and replace drive axle assembly.

89. Inspect, remove and replace half shafts and axle constant velocity (CV) joints.

90. Inspect, remove and replace drive shafts and universal joints.

91. Demonstrate an understanding of safe handling procedures associated with high voltage powertrain components.

92. Inspect, remove and replace exhaust pipes, mufflers, converters, resonators, tail pipes, and heat shields.

93. Inspect, remove and replace fuel tank, tank filter, cap, filler hose, pump/sending unit and inertia switch; inspect and replace fuel lines and hoses.

94. Inspect, remove and replace engine components of air intake systems.

95. Inspect, remove and replace canister, filter, vent, and purge lines of fuel vapor (EVAP) control systems.

96. Identify vehicle manufacturer's SRS recommended procedures before inspecting or replacing components.

97. Inspect, remove, and replace seatbelt and shoulder harness assembly and components.

98. Inspect restraint system mounting areas for damage; repair as needed.

99. Verify proper operation of seatbelt.

100. Deactivate and reactivate Supplemental Restraint System (SRS).

101. Inspect, remove and replace Supplemental Restraint Systems (SRS) sensors and wiring; ensure sensor orientation.

102. Verify that Supplemental Restraint System (SRS) is operational.

103. Inspect, remove, replace and dispose of deployed and non-deployed airbag(s) and pretensioners.

104. Use Diagnostic Trouble Codes (DTC) to diagnose and repair the Supplemental Restraint System (SRS).

105. Demonstrate an understanding of advanced restraint systems.

**Connections:**

*Common Core State Standards
*KOSSA
*Common Core Technical Standards
*New Generation Science Standards
*Post-Secondary: KCTCS CRT 250-251
CTSO's – Skills USA

**Damage Analysis, Estimating and Customer Service**
**Valid Course Code**
**470628**

## Course Description

This course instructs students on how to perform damage analysis, estimating and providing quality Customer Service. For every task in Damage Analysis, Estimating and Customer Service, the following safety requirement must be strictly enforced: comply with personal and environmental safety practices associated with clothing and the use of gloves, respiratory protection, eye protection, hand tools, power equipment, proper ventilation and the handling, storage, and disposal of chemicals/materials in accordance with local, state, and federal safety and environmental regulations. THIS COURSE WILL NOT BE AVAILABLE UNTIL THE 2014-2015 SCHOOL YEAR.

## Content/Process

Student Will:

1. Position the vehicle for inspection.
2. Prepare vehicle for inspection by providing access to damaged areas.
3. Analyze damage to determine appropriate methods for overall repairs.
4. Determine the direction, point(s) of impact, and extent of direct, indirect, and inertia damage.
5. Gather details of the incident/accident necessary to determine the full extent of vehicle damage.
6. Identify and record pre-existing damage.
7. Identify and record prior repairs.
8. Perform visual inspection of structural components and members.
9. Identify structural damage using measuring tools and equipment
10. Perform visual inspection of non-structural components and members.
11. Determine parts, components, material type(s) and procedures necessary for a proper repair.
12. Identify type and condition of finish; determine if refinishing is required.
13. Identify suspension, electrical and mechanical component physical damage.
14. Identify safety systems physical damage.
15. Identify interior component damage.
16. Identify damage to add-on accessories and modifications.
17. Identify single (one time) use components.
18. Determine and record customer/vehicle owner information.
19. Identify and record vehicle identification number (VIN) information, including nation of origin, make, model, restraint system, body type, production date, engine type, and assembly plant.

20. Identify and record vehicle options, including trim level, paint code, transmission, accessories, and modifications.
21. Identify safety systems; determine replacement items.
22. Apply appropriate estimating and parts nomenclature (terminology).
23. Determine and apply appropriate estimating sequence.
24. Utilize estimating guide procedure pages.
25. Apply estimating guide footnotes and headnotes as needed.
26. Estimate labor value for operations requiring judgment.
27. Select appropriate labor value for each operation (structural, non-structural, mechanical, and refinish).
28. Select and price OEM parts; verify availability, compatibility, and condition.
29. Select and price alternative/optional OEM parts; verify availability, compatibility and condition.
30. Select and price aftermarket parts; verify availability, compatibility, and condition.
31. Select and price recyclable/used parts; verify availability, compatibility and condition.
32. Select and price re-manufactured, rebuilt, and reconditioned parts; verify availability, compatibility and condition.
33. Determine price and source of necessary sublet operations.
34. Determine labor value, prices, charges, allowances, or fees for non-included operations and miscellaneous items.
35. Recognize and apply overlap deductions, included operations, and additions
36. Determine additional material and charges.
37. Determine refinishing material and charges.
38. Apply math skills to establish charges and totals.
39. Interpret computer-assisted and manually written estimates; verify the information is current.
40. Identify procedural differences between computer-assisted systems and manually written estimates.
41. Identify procedures to restore corrosion protection; establish labor values, and material charges
42. Determine the cost effectiveness of the repair and determine the approximate vehicle retail and repair value.
43. Recognize the differences in estimation procedures when using different information provider systems.

44. Verify accuracy of estimate compared to the actual repair and replacement operations.
45. Identify type of vehicle construction (space frame, unibody, body-over-frame).
46. Recognize the different damage characteristics of space frame, unibody, and body-over-frame vehicles.
47. Identify impact energy absorbing components.
48. Identify steel types; determine repairability.
49. Identify aluminum/magnesium components; determine repairability.
50. Identify plastic/composite components; determine repairability.
51. Identify vehicle glass components and repair/replacement procedures.
52. Identify add-on accessories.
53. Acknowledge and/or greet customer/client.
54. Listen to customer/client; collect information, identify customers/client's concerns, needs and expectations.
55. Establish cooperative attitude with customer/client.
56. Identify yourself to customer/client; offer assistance.
57. Deal with angry customer/client.
58. Identify customer/client preferred communication method; follow up to keep customer/client informed about parts and the repair process.
59. Recognize basic claims handling procedures; explain to customer/client.
60. Project positive attitude and professional appearance.
61. Provide and review warranty information.
62. Provide and review technical and consumer protection information.
63. Estimate and explain duration of out-of-service time.
64. Apply negotiation skills to obtain a mutual agreement.
65. Interpret and explain manual or computer-assisted estimate to customer/client.

**Connections:**

*Common Core State Standards
*KOSSA
*Common Core Technical Standards
*New Generation Science Standards
CTSO's – Skills USA

## Special Projects I, II, III, (Collision Repair)
## Valid Course Codes
## Class A: 470677
## Class B: 470678
## Class C: 470679

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|---|
| These courses are designed for students to help them satisfactorily complete collision repair tasks or to enhance their skills in the occupational area. Prerequisites: Consent of Instructor |
| **Content/Process** |
| Student Will:<br>Diagnose and repair selected task/problems as determined by the instructor |
| **Connections:** |
| *Common Core State Standards<br>*KOSSA<br>*Common Core Technical Standards<br>*New Generation Science Standards<br>*Post-Secondary: KCTCS CRT 291-293-295<br>CTSO's – Skills USA |

## Painting and Refinishing Special Problems
## Valid Course Code
## 470647

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| These courses are designed for students to help them satisfactorily complete collision repair tasks or to enhance their skills in the occupational area. Prerequisites: Consent of Instructor |
| **Content/Process** |
| Student Will:<br>Diagnose and repair selected task/problems as determined by the instructor |
| **Connections:** |
| *Common Core State Standards<br>*KOSSA<br>*Common Core Technical Standards<br>*New Generation Science Standards<br>*CTSO's – Skills USA |

## Non-Structural Damage and Repair Special Problems and Lab
## Valid Course Codes
## Class A: 470651 Lab A: 470653

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| These courses are designed for students to help them satisfactorily complete collision repair tasks or to enhance their skills in the occupational area. Prerequisites: Consent of Instructor |
| **Content/Process** |
| Student Will:<br>Diagnose and repair selected task/problems as determined by the instructor |
| **Connections:** |
| *Common Core State Standards<br>*KOSSA<br>*Common Core Technical Standards<br>*New Generation Science Standards<br>*Post-Secondary: KCTCS<br>*CTSO's – Skills USA |

**Collision Repair Internship I and II**
**Valid Course Codes:**
**Class A: 47604**
**Class B: 47605**

## Course Description

Internship for CTE courses provide supervised work-site experience for high school students who are enrolled in a capstone course associated with their identified career pathway. Internship experiences consist of a combination of classroom instruction and field experiences. A student receiving pay for an intern experience is one who is participating in an experience that lasts a semester or longer and has an established employee-employer relationship. A non-paid internship affects those students who participate on a short-term basis (semester or less).

## Content/Process

Students Will:

1. Gain career awareness and the opportunity to test career choice(s).
2. Receive work experience related to career interests prior to graduation.
3. Integrate classroom studies with work experience.
4. Receive exposure to facilities and equipment unavailable in a classroom setting.
5. Increase employability potential after graduation.

## Connections:

*Common Core State Standards
*KOSSA
*Common Core Technical Standards
*New Generation Science Standards
*ASE Student Certification
*ASE Professional Certification
*Post-Secondary: KCTCS AUT 198-298
*CTSO's – Skills USA/Ford AAA

**Workplace Principles**
**Valid Course Code**
**060191**

## Course Description

Workplace Principles examine the changing workforce and the skills needed to adapt to constantly changing demands and expectations. The course includes, but is not limited to, problem solving, teamwork, time management, and self-management skills. Job-seeking and job-retention skills are taught through the development of resumes and job search materials. Maximum benefit is received if this course is taken in the latter part of the student's course work.

## Content/Process

Students Will:

1. Describe and apply the problem-solving processes independently and in groups.
2. Describe the importance of teamwork and apply teamwork skills.
3. Identify barriers to full team participation (sexual harassment, diversity, Americans with Disabilities Act, inhibiting behaviors.)
4. Apply conflict resolution skills in team situations (i.e. workplace violence)
5. Describe the importance of time and self-management in the workplace.
6. Describe personal performance skills (i.e., appropriate dress, business protocol, personality traits, customer relations skills, and professional behavior)
7. Describe the steps to take advantage of transition opportunities (i.e., lifestyle change, employment change)
8. Develop an employment portfolio including a cover letter, resume, and reference page.
9. Identify sources for job leads and employer contacts.
10. Complete application forms.
11. Prepare and practice for job interviews.
12. Practice job follow-up strategies (job acceptance and job rejection)
13. Review pre-employment tests.
14. Identify policies and procedures for a drug-free workplace, workers' compensation, Family Medical Leave Act, grievance policy, unemployment compensation, and business ethics.
15. Identify ergonomics and understand why ergonomics is important from a health point of view.
16. Demonstrate accountability of and the safe and responsible use of company resources, office equipment, machines, etc.
17. Apply Internet etiquette and safety.

18. Identify safety rules applicable to this course and demonstrate appropriate observance of said rules, including but not limited to, trip hazards, electrical cords and outlets, evacuation procedures for emergency situations (including fire, tornado, bomb threat, earthquake, etc.), lockdown procedures for emergency situations, location and contents of first aid kit, MSDS sheets, etc.

**Connections:**

*Common Core State Standards
*KOSSA
*Post-Secondary: KCTCS WPP 200
*CTSO's – Skills USA